LINE OUTPUT PENTODE

Beam pentode intended for use as line output tube in television receivers.

QUICK REFERENCE DATA				
Anode peak voltage	V_{ap}	max.	7	kV
Cathode current	I_k	max.	250	mA
Anode dissipation	W_a	max.	16	W

HEATING: Indirect by A.C. or D.C.; series supply

Heater current	I_f	300	mA
Heater voltage	V_f	27	V

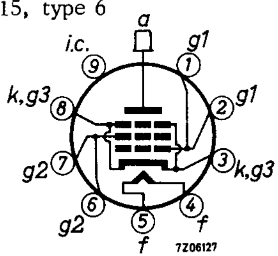
DIMENSIONS AND CONNECTIONS

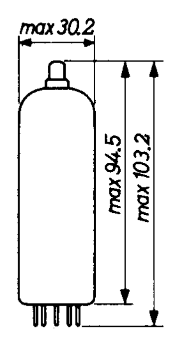
Dimensions in mm

Base: Magnoval; IEC 67-I-36a

Cap : Type 1

Outline: IEC67-II-15, type 6





CAPACITANCES

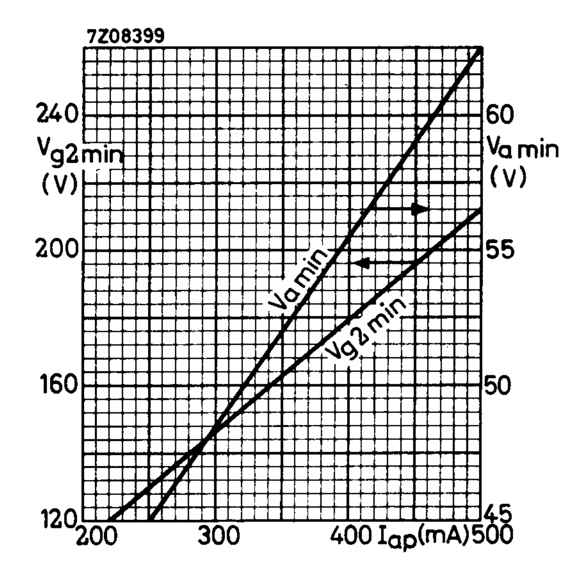
Anode to grid No. 1	C_{ag1}		1.75	pF
Grid No. 1 to heater	C_{g1f}	max.	0.2	pF

TYPICAL DYNAMIC CHARACTERISTICS (measured under pulse conditions)

Anode voltage	V_a	50	7000	V
Grid No. 2 voltage	V_{g2}	200	200	V
Grid No. 1 voltage	V_{g1}	-10	-120	V
Anode current	I_a	420	0.05	mA
Grid No. 2 current	I_{g2}	37		mA

OPERATING CHARACTERISTICS

Stabilized circuits (D.C. feedback)



Minimum required values of the screen grid voltage and of the anode voltage when the tube is used in line output stages. The graphs refer to nominal mains voltage provided the specified values of V_a are increased by 10% of the anode supply voltage. The specified values of I_{ap} will be available throughout life of the tube at supply voltage values 10% below nominal.
In order to prevent Barkhausen interferences, care should be taken that the anode voltage never drops below the specified V_a min. during the scanning period.

Non stabilized circuits

Supply voltage	V_b	190	230	V
Grid No.2 series resistor	R_{g_2}	2.2	2.2	kΩ
Grid No.1 voltage	V_{g_1}	+1	+1	V
Anode peak current	I_{a_p}	230	320	mA[1])

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[1]) See page 3

HUM

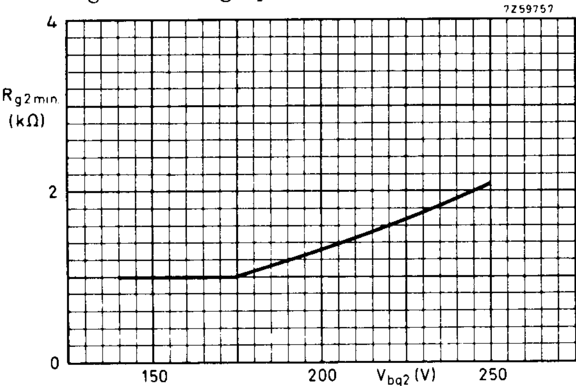
At Z_{g1} = 200 kΩ (f = 50 Hz), V_{kf} = 220 V_{RMS} and without wiring and socket capacitances, the equivalent grid hum voltage is < 5 mV.

LIMITING VALUES (Design centre rating system unless otherwise stated)

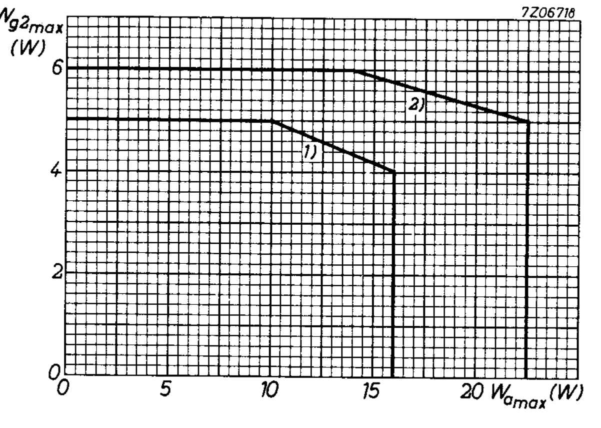
Anode voltage	V_{a_o}	max.	550	V	
Anode voltage	V_a	max.	250	V	
Anode voltage, peak	V_{a_p}	max.	7000	V	3)4)
Grid No. 2 voltage	V_{g2o}	max.	550	V	
Grid No. 2 voltage	V_{g2}	max.	250	V	
Anode dissipation	W_a	see page 4			
Grid No. 2 dissipation	W_{g2}	see page 4			2)
Cathode current	I_k	max.	250	mA	
Grid No. 1 resistor	R_{g1}	max.	0.5	MΩ	5)
Cathode to heater voltage	V_{kf}	max.	250	V	
Bulb temperature	t_{bulb}	max.	280	°C	6)

NOTES

1. To allow for tube spread, deterioration during life and a mains voltage 10 % below nominal, the specified values for I_{ap} should not be exceeded at nominal mains voltage and at the specified conditions.
2. To prevent an excessive value of W_{g2} during the heating-up period, the minimum R_{g2} values are given in the graph below.



3. Maximum pulse duration is 22 % of a cycle and max. 18 μs.
4. V_{ap} design max. 8 kV
5. R_{g1} = max. 2.2 MΩ for line output application.
6. Absolute max. value.



1) Disign centre limits for W_a and W_{g_2}.

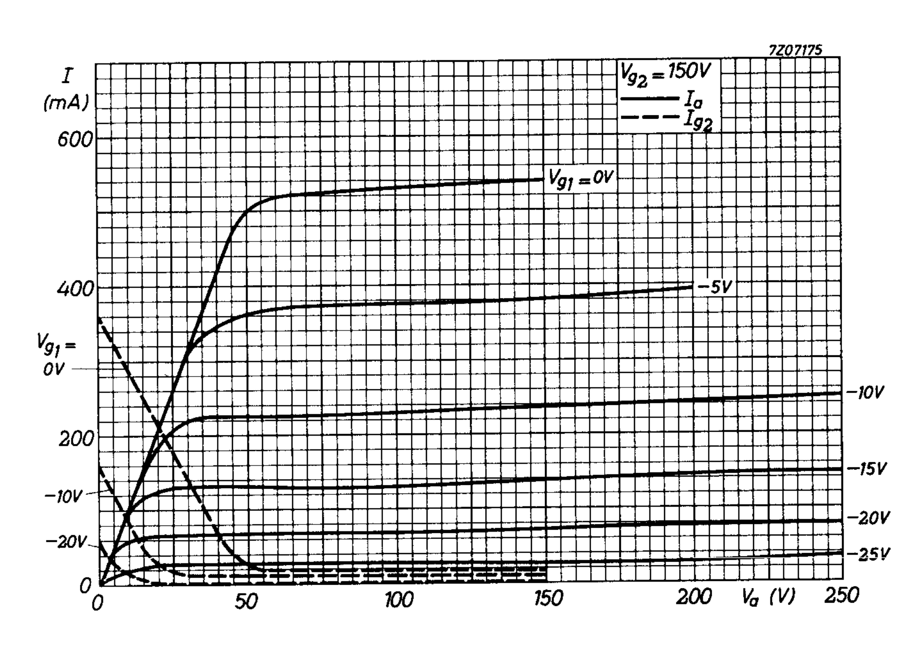
2) These limits for W_a and W_{g_2} should not be exceeded with a nominal tube operating in a normal line deflection circuit under the worst probable conditions.

7Z00565
E/PL500 21-6-'61
I_a (mA)
700
600
500
400
300
200
100
0
$V_a=V_{g2}=190$ V
170 V
150 V
130 V
−50 V_{g_1}(V) −40
−30
−20
−10
0

7Z07172

$V_{g2} = 130V$
—— I_a
– – – I_{g2}

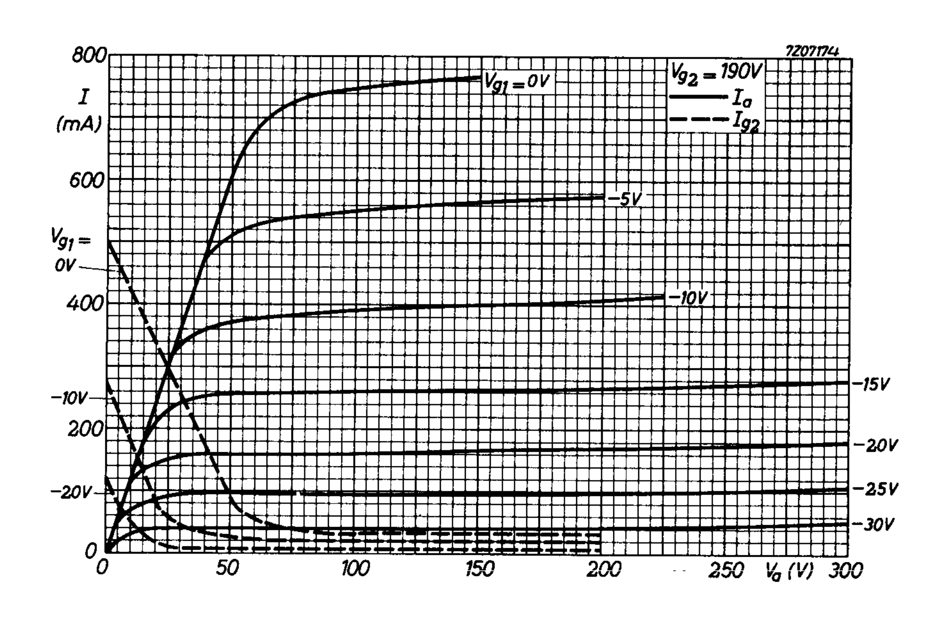
I (mA)
600
400
200
0
V_{g1} = 0V
−5V
−10V
V_{g1} = 0V
−5V
−10V
−15V
−20V
−25V
0
50
100
150
200
V_a (V)
250

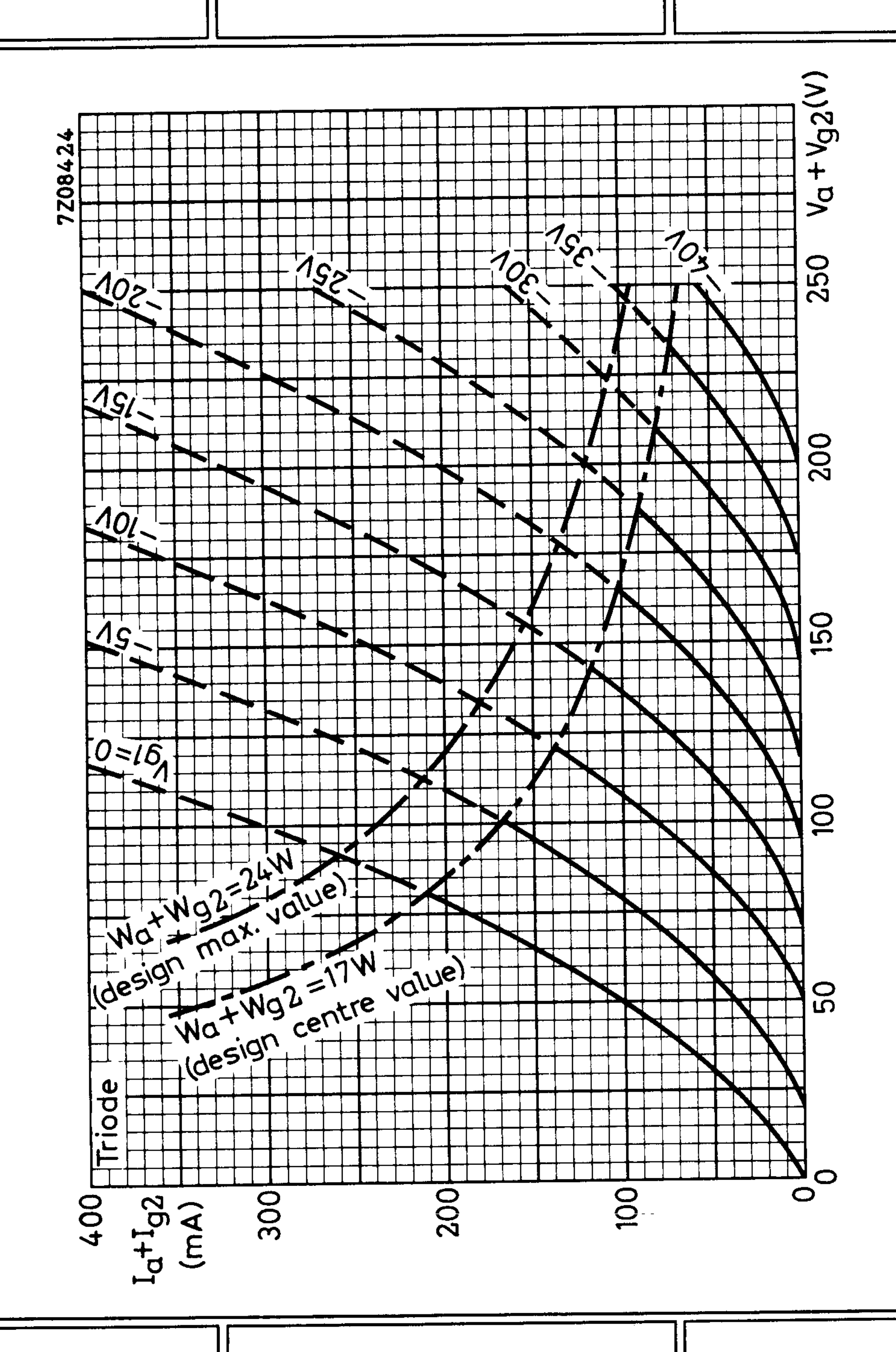


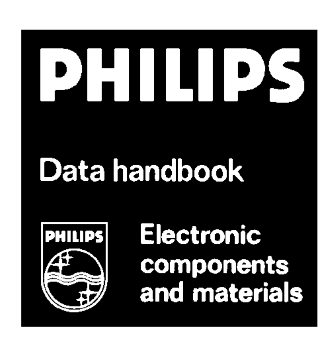
7Z07173

$V_{g2} = 170V$
— I_a
– – – I_{g2}

800
I (mA)
600
400
V_{g1} = 0V
200
−10V
−20V
0
$V_{g1} = 0V$
−5V
−10V
−15V
−20V
−25V
−30V
0 50 100 150 200 250 V_a (V) 300




7Z08424
Triode
$V_a + V_{g2}$ (V)
0
50
100
150
200
250
$I_a + I_{g2}$ (mA)
400
300
200
100
0
$V_{g1} = 0$
−5V
−10V
−15V
−20V
−25V
−30V
−35V
−40V
$W_a + W_{g2} = 24$W
(design max. value)
$W_a + W_{g2} = 17$W
(design centre value)



PL504

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